Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Transition from TTY to Real-Time Text	)	CG Docket No. 16-145
Technology	)	
	)	
Petition For Rulemaking To Update The	)	GN Docket No. 15-178
Commission's Rules For Access To Support	)	
The Transition From TTY To Real-Time Text	)	
Technology, And Petition For Waiver Of Rules	)	
Requiring Support Of TTY Technology	)	

To: The Commission

COMMENTS OF
THE BOULDER REGIONAL EMERGENCY TELEPHONE SERVICE AUTHORITY

The Boulder Regional Emergency Telephone Service Authority ("BRETSA"), by its

attorney, hereby submits it's Comments on the Commission's December 16, 2016 Further Notice

of Proposed Rulemaking in the above-referenced Docket ("FNPRM").[1]

I.   The Sunsetting of RTT-TTY Backwards Compatibility Should Be Based On The
Level of Use of TTY.

In the FNPRM, the Commission notes that it did not establish a deadline for RTT to

continue to be backwards compatible with TTY, and seeks comment on the type of data and

metrics that can be used to monitor the availability, adoption and acceptance of RTT services and

devices. The Commission then tentatively proposes to sunset the requirement of RTT-TTY

backwards compatibility in 2021, after just 4 years, without any data on which to base that

tentative conclusion.

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[1] BRETSA is a Colorado 9-1-1 Authority which establishes, collects and distributes the Colorado Emergency
Telephone Surcharge to fund 9-1-1 service in Boulder County, Colorado.

The Commission's apparent intent to base elimination of the RTT-TTY backwards compatibility requirement on RTT availability and market penetration assumes, without support, that there will not be continued reliance on TTY. However general availability and market penetration of RTT will not necessarily mean that deaf and hard-of-hearing individuals will not still rely upon TTY. In addition, once backwards compatibility with TTY is developed and integrated in RTT, there may be little or no cost to maintaining such backwards compatibility. Thus, the Commission should determine when to sunset the requirement that RTT be backwards compatible with TTY based upon (i) continuing levels of usage of TTY as reported by TRS providers, and (ii) the cost of continuing such backwards compatibility.

II. TRS Support Is Required In Legacy 9-1-1 Environments, And Should Be provided In NG9-1-1 Environments.

As BRETSA has previously stated, there are technological issues which impact TRS-relay of 9-1-1 calls which can be remedied in an NG9-1-1 environment with Commission leadership. TRS handling of 9-1-1 calls may continue to be necessary for efficient 9-1-1 call processing and emergency dispatch, as well as for communication between the deaf and hard-of-hearing and government agencies, commercial entities and other individuals.

A. TRS Is Not Equipped To Handle 9-1-1 Calls.

Based on the record in this proceeding and inquiry of TRS providers, TRS architecture does not include the facilities and services to (i) determine the location of the caller, (ii) identify the PSAP in whose jurisdiction a caller with an emergency is located, and (iii) connect to the PSAP through either legacy or NG9-1-1 systems. When a deaf or hard-of-hearing caller contacts a TRS for relay to a PSAP, determination of the caller's location, and identification of the PSAP in whose jurisdiction the caller is located, is necessary for the Call Assistant ("CA") to connect

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with and relay the call to the PSAP which can dispatch First Responders to the caller's location.[2] The CA does not have access to ALI data or PSAP service areas (jurisdictional boundaries), and certainly not in a manner to expeditiously determine the caller's location and the PSAP to which the caller communications should be relayed. This difficulty may be compounded if the CA is not located in the same area, or even the same state, as the deaf or hard-of-hearing caller, and thus lacks familiarity with the area in which the caller is located.

Even if a CA is able to determine the caller's location and identify the PSAP serving that location, the CA must call the PSAP on an administrative line, which may be answered on only a secondary basis and may not be answered at a dispatch position. That is, if the CA dials "9-1-1" to relay the call, the CA's call will be routed to the PSAP serving the CA's location, which may be in different jurisdiction or even a different state than the caller's location. It is only the PSAP serving the caller's location which has jurisdiction to dispatch First Responders, and where the dispatchers will be familiar with the state and local codes and PSAP and First Responder business rules, all of which is necessary to determine the appropriate response to the call. It is only the PSAP serving the caller's location which will know whether other callers have already reported the incident the deaf or hard-of-hearing is calling to report, and whether First Responders have already been dispatched to the incident.[3]

This is not just a matter of the difficulty of the CA in contacting the PSAP to which the call must be relayed, and having to determine the correct PSAP and the phone number for its

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[2] See December 14, 2011 Informal Comments of Krystallo Tziallila in PS Docket No. 11-153 (available at https://ecfsapi.fcc.gov/file/7021750686.pdf).
[3] PSAPs in Colorado are able to transfer 9-1-1 calls to other Colorado PSAPs, but not to PSAPs in other states, and would also need to determine the caller's location before the call could be transferred. The PSAP receiving a call from the CA would have the CA's ANI and ALI information, not the ANI and ALI information from the deaf or hard-of-hearing caller necessary to identify the PSAP to which the call should be transferred.

administrative lines; not all PSAPs have their administrative lines, or all of their administrative lines, answerable at dispatch positions.

In order for a call to a PSAP to be certain to be answered at a dispatch position, where the dispatcher has access to the Computer Aided Dispatch ("CAD") system and other data systems and the dispatch radio system, the call has to arrive over the dedicated 9-1-1 network, either from an end user who has dialed 9-1-1 or from another PSAP which received the call from an end user who has dialed 9-1-1.[4] Receipt of a call at a dispatch position expedites proper and effective disposition of the call.

In addition, Section 64.604(a) of the Commission's Rules, 47 C.F.R. § 64.604 (a) requires, *inter alia*, that all CAs (i) be sufficiently trained to effectively meet the specialized communications needs of individuals with hearing and speech disabilities, (ii) have competent skills in typing, grammar, spelling, interpretation of typewritten ASL, and familiarity with hearing and speech disability cultures, languages and etiquette, and (iii) are qualified interpreters able to interpret effectively, accurately, and impartially, both receptively and expressively, using any necessary specialized vocabulary. The Commission's Rules do *not* require CA's qualifications or training include the essential requirements for dispatchers to serve as a PSAP telecommunicators. As a result, CAs may not be prepared to effectively handle an emergency call.

Nevertheless, relay of TTY, RTT, or sign-language-over-video calls to a PSAP can improve emergency response for deaf and hard-of-hearing callers.

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[4] While this requirement may be remedied in NG9-1-1, NG9-1-1 has not yet been deployed in Colorado and many other states, and it will likely be a number of years before NG9-1-1 is ubiquitous.

B. **With Commission Leadership, NG9-1-1 Can Provide A Remedy For The Deaf And Hard-of-Hearing, And Non-English Speakers, To Reliably And Expeditiously Reach The Correct PSAP In An Emergency.**

As BRETSA has previously stated, a presentation was made to the Colorado 9-1-1 Task Force several years ago in which it was predicted that non-English speakers would enter their language-preference in their profile in their wireless device, and if the person called 9-1-1 the language preference from their profile would be transmitted with the call. This would allow the NG9-1-1 system to conference-in the correct interpreter *during call set-up*. Currently when a non-English speaker calls 9-1-1, the dispatcher has to determine that the person is not speaking English, call and conference in a Language Line-type service where a screener tries to identify the language and dialect of the caller, and then gets the correct interpreter on the line to translate between the caller and the dispatcher. The current process can take several minutes, while conferencing-in an translator during call set-up based upon the user's profile for their device would take milliseconds. Not only would a translator fluent in the caller's language be conferenced in without a screener having to try and identify the callers language and dialect, but the NG9-1-1 system could conference-in a translator trained or experienced in handling 9-1-1 calls, if available.[5]

This same functionality could benefit the deaf and hard-of-hearing, the deaf-blind, and other populations, if devices included the capability for users to enter their preferred means (or order of preference) for communicating, such as by TTY, SMS text-message, RTT, sign-

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[5] There are several telephone translation services available, which charge on a per-call and/or per-minute basis. BRETSA is hopeful that these services will also offer translation services for text-to-911 calls. If the NG9-1-1 system had access to the profiles of the translators available through the several services, then it could apply PSAP-selected routing rules to conference-in, in order of preference, (i) a translator with the PSAP's preferred service fluent in the caller's language and trained or experienced in handling 9-1-1 calls; and if no such translator was available (ii) a translator fluent in the caller's language and trained or experienced in 9-1-1 calls with any service, and (iii) if no such translator was available, to conference-in a translator fluent in the caller's language *without* training or experience in handling 9-1-1 calls. BRETSA is not aware of any service provider offering any such functionality with legacy 9-1-1 service.

language-over-video with or without voice-over, text message to be displayed on a refreshable braille display (which might impact transmission rate), etc. In an NG9-1-1 environment, rather than dialing *7-1-1* and advising a CA that they need to contact 9-1-1, the deaf or hard-of-hearing user could dial *9-1-1* and the NG9-1-1 system would conference-in the appropriate TRS or IP Relay service and CA during call set-up, if needed. The TRS or IP Relay service CA would communicate with the deaf or hard-of-hearing caller according to the caller's preference, expediting emergency response.

Proposals to implement NG9-1-1 in Colorado featured dispatchers signing on to the system and the system having access to their profiles and knowing when an individual dispatcher was handling a call. Thus, if a PSAP was able to employ a dispatcher(s) fluent in a sign language and deployed video call capability, a call from an individual wishing to communicate in that sign language would be routed to that dispatcher, if not already handling a call. If that dispatcher was unavailable, an IP Relay service would be conferenced in during call setup.

For this type of functionality to be available, device manufacturers, wireless and VoIP service providers, NG9-1-1 service providers, and relay services will all have to cooperate. Commission leadership can help foster such cooperation. While transition to NG9-1-1 is required by the eventual retirement of the analog systems and components on which legacy 9-1-1 relies and some claimed advantages of NG9-1-1 appear more "hype" than practical utility; the time which can be saved by conferencing-in translation services or relay service providers during call set-up can make a significant difference in response times, and lives saved.

C.   **TRS Relay of TTY, RTT, or Sign-Language-Over-Video Calls To a PSAP Can Improve Emergency Response For Deaf And Hard-of-Hearing Callers.**

When a 9-1-1 voice call is received at a PSAP, a 9-1-1 Telecommunicator ("dispatcher") answers the call using a telephone headset, which allows the dispatcher to hear and speak to the

caller yet have his/her hands free to enter relevant data in the CAD system, transmit CAD information to First Responders, and access data on the CAD system and other systems which may be critical to efficient and effective emergency response.[6] Not only is it infeasible for PSAPs to employ on all shifts dispatchers proficient in all sign languages over cell-phone video with excited callers who are very proficient at sign language; but the challenges to a dispatcher in both communicating by sign language, TTY or even RTT or SMS text message *and* entering data in CAD systems and accessing data in other systems may compromise the efficiency and effectiveness of call handling and emergency response.

PSAPs are still gaining experience with SMS text-to-911, and the impact of RTT on the PSAP, with its expectation of parties paying attention as the message arrives character-by-character, is unknown. PSAPs have not yet developed protocols for handling RTT messages, had any experience with them, or been able to weigh their impacts upon PSAP operations and emergency response. However if deaf and hard-of-hearing users wish to communicate with a PSAP via sign language, assistance from a relay service and CA will be required in most instances. Some PSAPs may elect to avail themselves of the services of a relay service and CA even in the case of a text call from a deaf or hard-of-hearing individual, either because of the challenges of communicating by text with the caller and simultaneously entering information in the CAD system,[7] or because some deaf and hard-of-hearing individuals communicate in text the way they "speak" in sign language, which can be confusing to dispatchers.

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[6] In a large PSAP, a dedicated call-taker may enter relevant data provided by the caller in the CAD system, and a dedicated dispatcher may dispatch First Responders based on the data entered by the call-taker. However the Commission has found that 75% of PSAPs have fewer than 5 positions (are small PSAPs). In such small PSAPs *and even medium-sized PSAPs* the same telecommunicator is likely to both take a 9-1-1 call and dispatch First Responders for that call. Even where the call-taking and dispatch functions are separated, the calltaker must still both communicate with the caller and enter relevant information provided into the CAD system for the dispatcher to use in performing the dispatch functions.

[7] When a PSAP CAD system is connected by mobile CAD to First Responder units, dispatchers can send textual messages and other data to First Responders through the CAD system, with the communications being logged.

D. TRS May Have Continued Use Relaying Calls To Private, Public and Commercial Entities.

BRETSA's interest naturally lies in efficient and effective handling of calls for assistance from deaf and hard-of-hearing individuals, including calls with which TRS provide assistance. However TRS also relay calls between deaf and hard-of-hearing individuals and any other party with whom such individuals may need to communicate. This could include government agencies, schools, commercial entities such as retail stores or restaurants including small businesses, and private individuals who do not use RTT or SMS or do not have the capability to communicate by sign-language-over-video. Just because RTT may achieve significant market penetration (through incorporation in marketed devices) does not mean that there will not be significant numbers of users who will not use them, including people with whom deaf and hard-of-hearing individuals need to communicate. It is not clear that all VoIP or landline users will have or choose to use RTT capability. In addition, relay services may relay calls between deaf and hard-of-hearing individuals who have different preferences or abilities for methods of communicating.

III. The Commission Should Require RTT Be Backward Compatible With, and Default to Block Mode In True, Control Channel-Based SMS Text-Messaging.

The Commission notes in the FNPRM that RTT must be slowed down for refreshable Braille displays, and that such displays must be able to suspend incoming text when the user is typing to avoid confusion. BRETSA understands that true SMS text is already compatible with such displays.[8] During times of high PSAP call volume, RTT fall-back to *true SMS* text messaging would allow dispatchers to scan text messages and prioritize calls based upon the urgency of the matter being reported. Backwards compatibility would also permit users to communicate with others who either do not have RTT capability or prefer SMS text messaging.

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[8] *See* Attachment No. 1, brochure for Focus 14 Blue Portable Refreshable Braille Display.

BRETSA emphasizes the importance of *true SMS* text messaging, transmitted over control channel, versus emulated SMS or RTT which requires establishment of a "session." True SMS text messaging allows text messages to be transmitted and received at locations where there is an insufficient signal for a voice call. This not only includes locations in rural and "backcountry" areas, but also interior locations of buildings even in urban areas where CMRS signals are too attenuated by building and structural density for the establishment of voice calls or sessions. Critical improvements in 9-1-1 service from the Commission's requirement of SMS text-to-911 will be lost if true, control-channel based, SMS text messaging is replaced by session-based RTT and session-based emulated SMS text messaging.[9]

Respectfully submitted,

BOULDER REGIONAL EMERGENCY
TELEPHONE SERVICE AUTHORITY

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February 22, 2017

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[9] See BRETSA's July 22, 2016 Comments on the April 29, 2016 NPRM in this proceeding, at 4-6 (available at https://ecfsapi.fcc.gov/file/10722185086488/BRETSA%20Comments%20CG%2016-145%20RTT%20GN%2015-178%20filed%2020160722.pdf).

Attachment No. 1

Brochure: Focus 14 Blue
Portable Refreshable Braille Display

Focus 14 *Blue*

Portable Refreshable Braille Display

Features at a Glance

- 14 refreshable Braille cells

- 8-dot Braille keyboard with superb feel and response

- Compact and durable – designed for portability

- Convenient thumb key, panning buttons, and NAV Rockers

- Smooth paper-like feel

- Bluetooth 2.0 and USB 2.0 connectivity

- Adjustable key repeat for rapid scrolling and panning

- Charge battery via USB

- Works with JAWS® BrailleIn™ for Contracted Braille input in Windows

- Out-of-the box compatibility with Apple iOS devices

- Braille Study Mode

14 Cells of Braille and Full Control with Bluetooth® in an Ultra-Portable Size

The new Focus 14 Blue combines a highly responsive 8-dot keyboard and comfortable control layout with both USB and Bluetooth connectivity in a pocket-sized design.

The fusion of comfort, portability, and advanced features makes the new Focus 14 Blue the ultimate go-anywhere Braille interface device. Read text messages, navigate your Smartphone screen, and enter text – all without taking your phone off your belt or out of your bag. With Focus 14 Blue, you have an efficient, full-featured Braille keyboard for your Smartphone, plus the ability to read your Smartphone's display silently.

Advanced navigation features allow quick movement around documents with natural, efficient hand movements for greater productivity. Read documents and e-mail, work with spreadsheets, and surf the Web – never moving your hands from the Braille display. Freedom Scientific's exclusive NAV Rockers let you rapidly scroll by line, sentence, or paragraph, or pan through a document. You can even select the firmness of the Braille display with VariBraille.

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Focus 14 *Blue*

Portable Refreshable Braille Display

Braille Cells:

14 refreshable 8-dot Braille cells

Size:

6.3 in. x 3.2 in. x 0.7 in.
(16 cm. x 8.2 cm. x 1.9 cm.)

Weight:

0.84 lbs. (328 g.)

Controls:

8-key Perkins-style keyboard
NAV Rocker at each end of display
(independently settable for line, sentence,
paragraph, or pan forward/back)
Cursor Router keys
Two front-mounted thumb keys for panning
Two front-mounted thumb rockers
for line up/down
Two Selector keys
Two Shift keys

Connectivity:

USB 2.0 or Bluetooth 2.0

Battery:

Rechargeable lithium-ion battery
20 hours, typical usage Bluetooth
Recharges from PC through USB

Package Also Includes:

Convenient, use-in carrying case
Charger

Full Support for Apple Devices

The Focus 14 Blue works with Mac OS X Mountain Lion, the latest operating system for Apple computers, providing extensive Contracted Braille input and output. It is also compatible with the full range of iOS 6 devices, so you can access your iPhone®, iPad®, and iPod® Touch via Bluetooth. You have keyboard navigation throughout the Home screen and apps, and you can type and read in Contracted Braille or Computer Braille.

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